

... a post's day;

ANIMALS OR PLANTS?

In the course of a lecture on "Plants that prey upon animals, and animals that fertilise plants," recently delivered at Leeds, by the Rev. W. H. Dallinger, the lecturer explained that there were animals—definitely proved to be such, and with which every zoologist was familiar—that were so slowly in their hearing that they possessed no definite form. They revealed to the most refined searching microscope a mass of minute, hair-like, tube-like, muscle, they crept, but without limbs; they felt, but without discoverable nerves; they devoured without mouths; they digested without stomachs; and they had all the properties of life, but were without trace of organized structure. It was their habit to associate with even those most lowly creatures, but since they are animals, to measure, at least in the popular mind, the difference between them and other hand, there were plants of the highest and most compact structure in which delicate organization, refinement of mechanism, contrivances, and adaptation of means to ends were combined; and yet, because they were vegetables, they were accustomed to assume that they were without consciousness. The facts, however, which the facts of Zoology at the present day was in a position to sense a science, did facts and a precision almost unrivaled, and from these they were bound to say that the old landmarks were utterly incompetent. The animal and vegetable kingdoms could not be separated, and the two marched on in one organic whole. To the popular mind he had no doubt that the facts were so, but he had no doubt that the observation the distinction between the plant and the animal was believed to be sufficiently clear. Between an ox and an oak tree there was an unmistakable difference. A cabbage and a swallow were not very easily confounded. This was quite true; but if the entire of what was known as the animal kingdom were laid aside, the whole of what was known as the vegetable kingdom would be seen that there were no features belonging to the one which were not in some sense shared by the other. There were vegetables controlled by movements which in animals would be called instincts. They could intoxicate a plant as they could intoxicate a man or beast; they could paralyze it with rain or frost; they could excite it with a magnetic spark. There were some plants which depended for existence on the animals they were trapped, and to this end they were endowed with a susceptibility more delicate than that of the human body, whilst they could distinguish between food which would nourish them and substances which would not. I would too soon to say that the vegetable kingdom would be the termination of the most beautiful plants existing in the globe; while the extinction of these beautiful plants would, in like manner be the ruin of the majority of insects.

nts are divided into males, females, and

7.—It is further provided that a "fault" shall be called when a ball is delivered, and

8.—The law that a good service, delivered when the striker-out is not ready, and previous fault is repelled, and a service whether good or a fault, so delivered, will future count for nothing.

9.—A return in which the ball touches net is still considered good; but, if the ball is caught by the net, the service, provided by otherwise good, counts for nothing.

10.—It is expressly forbidden to a player to "touch the net or any of its parts, while the ball is in play," and also "volley the ball before it has passed net, on penalty of losing the stroke."

11.—An alteration has been made in law affecting the change of side at an appeal. In the old law, the player on appeal from either party, before that for choice, may direct the players to choose sides at the end of every game, if, in opinion, either side have a distinct advantage owing to the sun, wind, or any other accidental cause; but, if the appeal be made after a match has been begun, the Umpire may only direct the players to change sides at the end of every game of the odd concluding set.

12.—In the laying-out of the court for three-handed and four-handed games, an important change has been made, with the view of moderating the supremacy of service; within the side-lines, at a distance of 4 feet from them, and parallel with them, are drawn two service side-lines. At the end of each side-line the net is not drawn beyond the points at which it meets these service side-lines. By this arrangement, server will have precisely the same range into the three-handed and four-hand games as the single-handed game, and partner will not have so great an advantage as hitherto, in standing close up to the net, and so that the ball will not be so easily caught from either side of the single-handed and four-handed courts laid out together, the one over-riding the other, these inner side-lines already exist also on many lawns, which are not large enough to allow space for both kinds of court separately. Of course, the service must be delivered so that the ball shall strike within or upon these new lines, or it will be a fault.

It will be observed also that the height of the net at the posts will now be the same in the single-handed and in the three-handed and four-handed games—another element of simplicity.

On behalf of the A.B.C.T.C. Club, I may be allowed to express my sincere appreciation of the interest and assistance which were received, considered, and finally adopted by the Tennis Committee of the A.C.C.

JULIAN MARSHALL, Hon. Sec. A.E.C.
L.T.C.

those of the higher classes are even isolated here than in China; a little

two centuries ago, and the compass, which has been brought into common use, is a typical product. Though passages of dates speak explicitly of the use of the compass for land purposes, yet no mention of the magnet for navigation occurs in the Chinese books that have come to the knowledge of Europeans, till the dynasty which lasted from the year 266 to 420, when it is in the great dictionary, *Kolwoon*, which is the Chinese name for the three iron spires directed to the south needle." Sir John Davis contends that the passage rather refers to the magnitude of their ships, and the extent of the voyages which they performed; than to the invention of the needle into marine affairs; the ninth century two Mahometan travellers are stated to have visited the islands of the compass in the Red Sea, and the compass is not mentioned; it is improbable that the Chinese should have known the directive property of the stone and have used it on land in thirty centuries and yet not have employed it at sea. About 1260, according to Dante's testimony, needle was highly useful at sea, the navigators were prejudiced against the use of the compass, and the mariners, to whom it is, let be should fall under the suspicion of being a magician's nor would the sailors venture themselves out under his command, if he took with him an instrument which carries so great an amount of being constructed under the influence of some infernal spirit. The Chinese, however, were not so prejudiced, and the compass, which, pointing to the star, and Raymond Lully, in 1286, reports that the sea-men of his time, employed magnetic measurement, was characterized by the name of needle. The earliest records in that in a work by Alexander Ham (born about 1150), entitled "The Art of Things pertaining to the Sea," in which the compass is called the "magnet" was as the *Salicorno*, or *Adamant*, and the compass was called the *Sailing needle*, although it is long after this period the first and the word compass. Chaucer died in 1400, mentions the compass, sailors reckoning, their three points, the horizon, which is the present division of the compass into four parts, viz., North, East, South, and West. Elizabeth, and who bestowed much attention upon magnetism, compared the earth to a great magnet, and in our time Kepler said, "The earth is a great magnet, power according to Gauss, being so great that which would be conferred if every yard of it contained six one-pound magnets, the sum of the force being 100,000, such a sum." The use of the word compass became familiar in the reign of Edward and Rowe, in his play of "Jane Shore," speaks of "the sea-man's compass." — *Technical Educator*.

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